



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,182	03/05/2002	Max Donath	U11.12-0145	9959

7590 10/04/2003

WESTMAN, CHAMPLIN & KELLY
SUITE 1600
INTERNATIONAL CENTRE
900 SECOND AVENUE SOUTH
MINNEAPOLIS, MN 55402-3319

EXAMINER

GIBSON, ERIC M

ART UNIT	PAPER NUMBER
----------	--------------

3661

DATE MAILED: 10/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

10/091,182

Applicant(s)

DONATH ET AL.

Examiner

Eric M Gibson

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-6,8,9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to because the handwritten reference numbers in figure 5 are unclear. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claims 12 and 13 are objected to because of the following informalities:
- a. In claim 12, line 6, the phrase "date elements" should be --data elements--.
 - b. Claim 13 is necessarily objected as being dependent upon an objected base claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 3661

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 6-8, 39 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. As per claim 6, the phrase at line 3, "within than one decimeter" is indefinite. There appears to be a limitation missing between "within" and "than" in the claim.

b. Claims 7 and 8 are necessarily rejected as being dependent upon a rejected base claim.

c. Claims 39 and 42 are rejected because the phrase "and/or" fails to describe the metes and bounds of the invention and renders the scope of the claims indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

Art Unit: 3661

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (US006184823B1) in view of Rogers et al. (US006144335A).

a. As per claim 1, Smith teaches a geographic database architecture that includes a geospatial database (40, figure 1) storing data elements indicative of objects and their location in 3-D space (column 7, lines 34-39), a database manager configured to maintain the data elements and receive database queries from the user (12, figure 1), and a query processor (navigation application 18, figure 1) that receives queries from the database manager, queries the database and returns the results to the database manager (column 26, lines 12-16, see also figure 20). Smith does not specify the accuracy of the location coordinates being approximately one decimeter or less (< 0.1 m). Rogers teaches the state of the art of GPS accuracy, including that depending on the desired accuracy for the particular application, accuracy at the decimeter-level is achieved through well-known methods in the art (column 1, lines 49-63). Navigation systems depend on the accuracy of their locations in order to function properly and effectively. It would have been obvious to one of ordinary skill in the art, at the time of invention, to have an accuracy in location coordinates to approximately one decimeter

or less in the invention of Smith, as achieved through well-known methods in the art shown by Rogers.

b. As per claims 2-5, Smith teaches that the query results are returned when there are any matches, the actual speed of the processing will be dependent on the design choice of the processor and its processing capabilities, as is well-known to one of ordinary skill in the art, at the time of the invention.

c. As per claims 6-8, Rogers teaches location accuracy on the decimeter and centimeter levels (column 1, lined 49-63).

d. As per claim 9, Smith teaches including a query polygon indicative of a geospatial region of interest and returning all results that intersect with the polygon (column 11, lines 43-45).

e. As per claims 10-13, Smith teaches parcelization of the database information such that it can be organized according to spatial location (column 13, lines 10-19) and according to attribute type (column 14, lines 33-54).

f. As per claim 14, Smith teaches that the database contains both spatial data portion and an attribute portion (column 8, lines 1-19).

g. As per claims 15-22, Smith teaches a variety of different attributes that may be included in the database (column 8, lines 1-25), that are not limited to only those explicitly defined, but also to other attributes common in a geospatial database.

h. As per claim 23, Smith teaches a geographic database architecture that includes a geospatial database (40, figure 1) storing data elements indicative of objects and their location in 3-D space (column 7, lines 34-39) and a database accessing

Art Unit: 3661

system that accesses the database in response to a query and returns the results in substantially real time (column 26, lines 12-16, see also figure 20). Smith does not specify the accuracy of the location coordinates being sufficient to distinguish among different lanes of travel. Rogers teaches the state of the art of GPS accuracy, including that depending on the desired accuracy for the particular application, accuracy at the decimeter and centimeter levels (sufficient to distinguish between lanes of travel) is achieved through well-known methods in the art (column 1, lines 49-63). Navigation systems depend on the accuracy of their locations in order to function properly and effectively. It would have been obvious to one of ordinary skill in the art, at the time of invention, to have an accuracy in location coordinates sufficient to distinguish between the lanes of travel in the invention of Smith, as achieved through well-known methods in the art shown by Rogers.

i. As per claims 24-26, Smith teaches that the query results are returned when there are any matches, the actual speed of the processing will be dependent on the design choice of the processor and its processing capabilities, as is well-known to one of ordinary skill in the art, at the time of the invention.

j. As per claim 27, Smith teaches a geographic database architecture that includes a geospatial database (40, figure 1) storing data elements indicative of objects and their location in 3-D space (column 7, lines 34-39) and a database accessing system that accesses the database in response to a query and returns the results in substantially real time (column 26, lines 12-16, see also figure 20). Smith does not specify the accuracy of the location coordinates being approximately one decimeter or

Art Unit: 3661

less (< 0.1 m). Rogers teaches the state of the art of GPS accuracy, including that depending on the desired accuracy for the particular application, accuracy at the decimeter-level is achieved through well-known methods in the art (column 1, lines 49-63). Navigation systems depend on the accuracy of their locations in order to function properly and effectively. It would have been obvious to one of ordinary skill in the art, at the time of invention, to have an accuracy in location coordinates to approximately one decimeter or less in the invention of Smith, as achieved through well-known methods in the art shown by Rogers.

k. As per claims 28-30, Rogers teaches location accuracy on the decimeter and centimeter levels (column 1, lined 49-63), which is sufficient to distinguish between lanes of travel.

6. Claims 31-33 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Smith and Rogers in view of Schofield et al. (US005949331A).

a. As per claims 31 and 32, the combination teaches the invention as explained in the rejection of claim 1. The combination does not teach a head-up display that generates and image of the lanes of the travel path. Schofield teaches display enhancements for a vehicle vision system that includes a head-up display (column 6, line 45) and superimposes an image of the boundaries of the travel path (column 10, lines 59-63). It would have been obvious to one of ordinary skill in the art, at the time of invention, to include a head-up display that generates and image of the lanes of the travel path in the system of the combination, as taught by Schofield, in order to increase the driver's awareness of the objects around the vehicle.

b. As per claims 33 and 40, Schofield teaches a radar system that detects and displays the objects around the vehicle (cameras 14 and 16, figure 1).

7. Claims 34, 36, 37, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Smith and Rogers in view of Wilson-Jones et al. (US005765116A).

a. As per claim 34, the combination teaches the invention as explained in the rejection of claim 1. The combination does not teach generating haptic feedback to the driver. Wilson-Jones teaches a driver assistance system that helps to keep a driver from going outside the lane markings on the road, including generating haptic feedback to the driver (column 6, lines 1-5). It would have been obvious to one of ordinary skill in the art, at the time of invention, to include haptic feedback in the system of the combination, as taught by Wilson-Jones, in order to warn a driver that the vehicle is crossing lane boundaries.

b. As per claims 36, 37, 41, and 42, Wilson-Jones teaches that the haptic feedback is in the form of a vibration transmitted through the steering wheel to the driver to simulate a rumble strip (column 6, lines 1-5).

8. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Smith, Rogers and Wilson-Jones as applied above to claim 34, and further in view of Breed et al. (US006370475B1).

a. As per claim 35, the combination teaches the invention as explained in the rejection of claim 34, however, the combination does not teach that the lane markings are stored in a database memory. Breed teaches an accident avoidance system that

Art Unit: 3661

compares the vehicle location to locations stored in a memory and issues a warning to the driver (column 53, lines 5-18), in order to prevent an accident. It would have been obvious to one of ordinary skill in the art, at the time of invention, to compare the vehicle location to lane marking locations stored in a memory and issue a warning to the driver in the invention of the combination, as taught by Breed, as an alternative method of determining the locations of the lane markings.

9. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Smith and Rogers in view of Breed et al. (US006370475B1).

a. As per claims 38 and 39, the combination teaches the invention as explained in the rejection of claim 1. The combination does not teach generating a warning based on the location of the vehicle relative to locations of objects stored in the database. Breed teaches an accident avoidance system that compares the vehicle location to locations stored in a memory and issues a warning to the driver (column 53, lines 5-18), in order to prevent an accident. It would have been obvious to one of ordinary skill in the art, at the time of invention, to compare the vehicle location to locations stored in a memory and issue a warning to the driver in the invention of the combination, as taught by Breed, in order to prevent an accident.

10. Claims 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Smith and Rogers in view of Dobler et al. (US006038496A).

a. As per claims 43 and 44, the combination teaches the invention as explained in the rejection of claim 1. The combination does not teach a radar subsystem to detect objects in the vicinity of the vehicle. Dobler teaches a radar system

Art Unit: 3661

to be used in a vehicle to detect objects in the vehicle's vicinity and issue a warning to the driver (column 1, lines 5-16). It would have been obvious to one of ordinary skill in the art, at the time of invention, to include a radar system to detect objects in the vehicle's vicinity in the system of the combination, as taught by Dobler, in order to issue a warning to the driver to prevent an accident.

Conclusion


11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Okude et al. (US006157342A) teaches a navigation device. Nagai (US005826212A) teaches a current-position map and three-dimensional guiding objects display device for a vehicle. Wysocki et al. (US005381338A) teaches a real-time three-dimensional geo-referenced digital orthophotograph-based positioning, navigation, collision avoidance and decision support system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric M Gibson whose telephone number is (703) 306-4545. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Cuchlinski can be reached on (703) 308-3873. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 3661

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.


WILLIAM A. CUCHLINSKI, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

EMG